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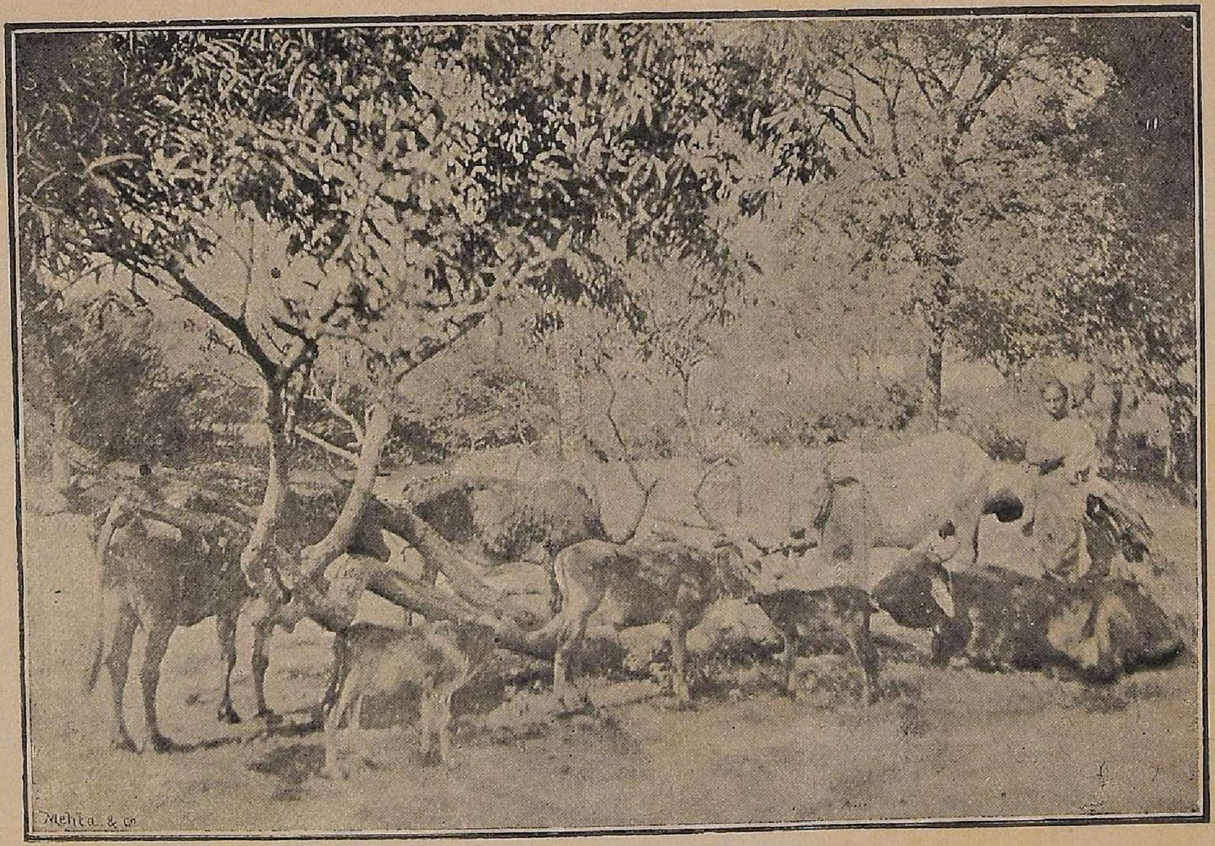

A GROUP OF CATTLE.

Journal of the
Amateur Photographic Society of Madras.

Vol. 2. July, 1896. No. 8.

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EDITORIAL NOTES.

WE constantly read of fresh applications of photography to practical purposes. As a means of permanently recording features or incidents, photography is of all methods *facile princeps*. To mention a common example, its employment as an automatic recorder of the constantly varying heights of the mercurial column in barometers and thermometers is probably known to our readers. One of the most striking examples of the application of photography in recent days is a method of recording the measurement of very high temperatures. The limit of the usual mercurial thermometers is soon passed, and for temperatures of anything like 1000° and more "in the shade" other means are resorted to in order to gauge the temperature. There are a few places on earth as hot as this, *viz.*, in the blast furnace or between the carbons of the electric arc light. If two dissimilar metallic wires are joined at one end and this junction is heated while the other ends of the wires are kept cool and joined either directly or through a copper wire, it behaves like a battery and an electric current passes across the junction, while the strength of the current so generated becomes a measure of the temperature to which the junction is raised. The strength of this current can be measured in various ways, but in the particular case under notice it is measured by the movements of a ray of light reflected from the mirror of a galvanometer placed in the circuit. If this "thermo-electric junction" be placed in the molten metal, in the furance, the higher the temperature the greater will be the amplitude of movement of the mirror. The reflected ray of light impresses a dotted line on a photographic plate which is adjusted to receive this light, and the curve so formed affords the datum for the record. The only limit of measuring the temperature is the melting point of the wires which form the battery, and Professor Roberts-Austen states that it is quite easy, at a temperature of 1000°, to obtain a record which is trustworthy to the tenth of a degree. By the employment of this method the observer can at any moment see for himself how thé temperature in a blast furnace is running, and in some furnaces it has been the means of saving fuel and of enabling the quality of the material turned out to be maintained constant. This is a typical case of the service which photography is rendering to industry.

THE subject of halation is ever with us, and a complete explanation of it is as far from us as it has been for a long time past. It is now admitted that the theory of its production by reflection from the glass backing is not sufficient to explain this phenomenon, the truth probably being that it is produced not by a single cause but by a combination of several causes, which produce varying results according to the conditions of the material upon which they operate. For instance, we read that the use of films, instead of plates, minimises the effect of halation, and on the other hand that films do not escape this defect. Exposure through the back of the plate has been tried,

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backing the plate with a non-actinic substance, coating plates thickly, coating them with layers of emulsions of graduated sensitiveness, and coating them with a non-actinic substratum before laying on the emulsion. These and many other remedies have been tried, but that the disease has not been stamped out is evident from the fact that the subject is constantly discussed at Photographic Societies and in Journals. There is no doubt but that reflection from the back is the chief of all the causes of halation, and that it is probably brought about in a less degree by reflection from the particles in the film itself. Whatever diminishes these reflections would therefore also diminish the liability to halation, and whatever increases them, as for example a thin film or over-exposure, would tend to increase the risk. With a correct exposure and a fairly thickly coated plate we have repeatedly demonstrated the possibility of developing a plate before the halation layer is attacked and so avoiding it. With an over-exposure where the halation has worked through to the front nothing can be done to avoid it, for it developes up with the image. Some remarks *á propos* of this subject will be found recorded in the Proceedings of the Society in a previous issue.

MR. J. PIKE, writing in the *British Journal* of 1st May last, reminds us of the possibility of redeeming faulty bromide prints. His remarks are extracted into this number of the Journal, and members in Madras will probably remember the complete demonstration of some methods of rejuvenating bromide proofs which Surgeon-Major VanGeyzel gave to this Society in 1894. His communication on the subject was reproduced in the Journal for January of this year, and members having faulty bromide prints and wishing to improve them cannot do better than read Mr. Pike's article and refer to their January number of the Journal.

IT will be remembered that Messrs. Haddon and Grundy published a paper about three years ago, in which they gave the results of their experiments on the length of time that albumen silver prints should be washed in order to eliminate all the hyposulphite. The results of their investigations showed that the usual two hours' washing was unnecessary, and that all the silver and hypo. capable of elimination by water could be removed by washing in running water for twenty minutes. They have since then investigated the number of changes of water necessary for properly washing a print when running water is not available. The question is one which has a special interest for Indian workers, since with 90 per cent. of us running water is difficult to procure or not to be had at all. Messrs. Haddon and Grundy communicated the results of their experiments to the London and Provincial Photographic Association. Albumenised paper was sensitised on a 50-grain neutral silver nitrate bath in the usual way, and after drying, the paper was cut up into pieces of equal size. Without exposure to light, the pieces of paper were washed till no signs of milkiness remained in the wash water and they were then fixed by immersion in a 1 in 5 hypo. bath for 20 minutes. They were then removed and subjected to the operation of washing. Throughout this investigation the amount of washing water employed bore a fixed ratio to the area of the paper which was being washed: the ratio determined on by the experimenters being one cubic centimetre of water to every square centimetre of paper surface. After five minutes washing, the pieces of paper having been kept in constant motion, the water was poured off, and two pieces of paper were removed for testing. The washing was in this manner continued through ten changes of water, the same procedure being adopted, the amount of water being decreased at each change so as to maintain the ratio alluded to above. The next step was to estimate the amount of silver left in the pieces of paper which had been removed at each change of water. This was done in the usual way by burning the paper, converting the silver in the ash into nitrate, precipitating and weighing as silver chloride, due precautions being adopted to ensure accuracy in the results. They found that at the end of the third change of water the amount of silver in the washed paper became constant and that further washing had no effect in reducing this quantity. At the same time they also investigated the progress of the removal of hypo. from the print, and they found that no hypo. could be detected in the wash water after the third change. Although these experiments were done with albumenised paper, the conditions are not very difficult with other kinds of paper, and the results may be applied

generally. Of course the whole of the silver cannot be removed from those parts of a print on which light has not acted, without destroying the print, in consequence of the formation of an organic silver salt which is insoluble in hypo.; and washing a print merely removes a solution of a soluble silver salt and the hypo. which have impregnated the paper. That all soluble silver and all hypo. which can be removed is eliminated by three changes of water, in which the prints have been kept constantly moving—and Messrs. Haddon and Grundy insist upon this as an essential condition—is what these experiments have established. The great care which Messrs. Haddon and Grundy have shown in this and in previous work entitle them to the fullest confidence, and workers need not feel any hesitation in accepting these results and acting upon them.

MR. WATKINS contributed an important note, at a recent meeting of the Royal Photographic Society, upon the composition of the silver image in a pyro-developed negative. He showed examples of negatives which were developed with pyro, half of which had been bleached and the silver dissolved out, but which yet showed a distinct image of the yellow color which gives the peculiar warmth to a pyro-developed negative. He believes that the makers of plates who mark H. & D. speed numbers on their boxes of plates base the values on pyro-developed negatives, and Liesegang who seems to have anticipated Watkins considers that this pyro stain has an important bearing upon recent researches upon the ratio between exposure and density.

THE object of using sulphite in the developer is to prevent the formation of staining matter, but the liability to stain would appear to be increased by the subsequent washing of the plate with water. Mr. Watkins showed that a mixed solution of pyro and sulphite darkened more readily in air, the more it was diluted with water. Mr. Chapman Jones, writing upon the subject of Sulphite in *Photography*, recommends washing the developer off the plate with sulphite solution before fixing. He further states that the quantity of sulphite to be used in the developer depends partly upon the alkali which is used: 8 grains to the ounce being a safe proportion when ammonia is used, and 15 grains being the *minimum* when carbonate of soda is employed. In order to get rid of developer stains Mr. Jones says that there is "nothing so efficacious as a dilute solution of caustic soda, but whatever is used, alum and acid solutions should be avoided." We emphasise these points, because we believe that the practice of many workers goes in the teeth of these precepts, and they may be glad to learn the newest developments in such points of practice.

MR. T. C. PORTER, of Eton College, has made the interesting discovery that a vacuum tube emits two different kinds of X rays, to one of which flesh is fairly transparent and bone opaque, and to the other of which flesh seems to be nearly as opaque as bone. He proposes to name the former X_1 and the latter X_2 rays. When the vacuum tube is heated, less of X_1 rays are emitted and more of X_2. At a certain temperature the emission of X_2 rays reaches a maximum, and, on further heating, the emission of any rays whatever which are capable of exciting photographic action diminishes rapidly.

MR. PORTER has further discovered that the discharge producing X_1 rays could be induced at will in a tube which was not giving them or was only giving them very feebly. By intermittently drawing off the charge which resides on the outside of the vacuum tube he found that the emission of X_1 rays was much increased and that a much weaker current than is usually employed would excite the tube. The arrangement which he adopted for this purpose was to place a ring of copper wire close round the tube, not touching it, in the plane of the edge of the kathode mirror, and then causing a very rapid intermittent discharge by approximating to the ring a wire connected to earth. The sparks between the ring and the earthed wire are very small, but the emission of X_1 rays under those conditions becomes brilliant. By such an arrangement as this, he found that a "fatigued" tube could be readily excited into activity, and that fatigue was not induced in tubes even when the emission of X_1 rays had been sustained for two hours with a few short intervals. After trying various plans, Mr. Porter finally recommends that the external part of the tube between the kathode wire loop and the plane of the edge of the kathode

mirror should be coated with any conducting metallic leaf. A loop of stout copper wire ending in a stem is placed round the tube in the plane of the edge of the kathode mirror so as to leave an interval of about $\frac{1}{20}$th of an inch between the wire and tube. The stem of the copper loop is then brought very close to the part of the kathode wire (from the induction coil) which is close to the tube. With this adjustment he finds that the emission of X_1 rays is very satisfactory. The matter is of great moment for a tube without the looped wire may sometimes be giving no X rays at all.

A SIMPLE instrument, which enables one to obtain a measure of the intensity of X rays and of so gauging the exposure required to produce the most satisfactory results, has been devised by Dr. Hall Edwards. No two tubes, however accurately made, are exactly alike, and the exposure necessary with one tube is found not to be the same as with another. He calls the apparatus the "Rayometer," and it is made of ten or twelve thicknesses of ferrotype plate cut into squares diminishing in size. These are laid one upon the other and rivetted through the centre, so that at the edge the instrument is only one plate thick, and its thickness gradually increases up to the middle where it is ten or twelve plates thick. If with a particular tube and plate an exposure of seven minutes at 5 inches is sufficient to give a satisfactory radiograph, then place the "Rayometer" on a similar plate at the same distance from the tube and give it the same exposure. On examining this negative, suppose that it is found that ten thicknesses have been penetrated. If now on repeating the experiment with a different tube it is found that only five thickness of the Rayometer have been penetrated, then the exposure required with the latter tube will have to be doubled.

IN the January issue of this Journal, we gave a list of our exchanges and we offered to endeavour to arrange for their circulation to members who may be desirous of seeing them. If members (both up-country and resident in Madras) would kindly refer to that list and intimate to the Honorary Secretary which of the journals they would like to see, we will do our best to place such journals at the disposal of the Honorary Secretary for circulation.

WE have received Prospectuses of the Forty-first Annual Exhibition of the Royal Photographic Society to be opened on 28th September, and of the Triennial Bristol International Photographic Exhibition to be opened on 14th December 1896. To the former foreigners are invited to contribute free of charge for wall space. The number of classes at the latter are varied and many. Members wishing for full information and for entry forms can obtain the same by applying to our Honorary Secretary, Mr. J. L. Walker.

WE are requested to announce that the Picture Subject for the Society's next Half-yearly Competition to be held in January 1897 will be "A Landscape." The weather will ere then have settled down to something decent, and we trust that members will send in contributions sufficient in number and quality to make a little cold weather exhibition of our own. There is no restriction of subjects for enlargements or lantern slides or any other branch of photography. Any member wishing to refresh his memory regarding the Rules can obtain a copy of them on applying to Mr. Walker.

OUR Illustration is a reproduction of a picture of a "Group of Cattle," to which a bronze medal was awarded at the last January Competition. The negative and the prize print were the work of General Wardrop. The original has unfortunately lost a great deal in the reproduction.

ON ENLARGING.

BY H. C. R. HARLEY.

The notices of Photographic Exhibitions, both in England and this country, show how popular the making of enlargements by amateurs has become. It certainly is one of the most fascinating and interesting branches of photography; nor is the process by any means a difficult one, provided the correct kind of negative and developer be used, and the utmost cleanliness observed in all the manipulations.

The principle on which enlargements are made is briefly as follows: Rays of light are transmitted through a negative, an image of which is projected for a certain length of time on a sheet of sensitized paper by means of a lens placed in the path of the rays, the resulting picture is then developed, fixed, washed, &c.

Enlargements can be made by day-light, or artificial light. The former is easily worked and presents but few difficulties, but to ensure success, by either process, the negative should be one which is well defined, full of sharp details, with a tendency to thinness, and no portion of it so dense that light cannot easily penetrate it; it should also be free from all defects such as scratches, &c. Many negatives which are thin, perhaps from over-exposure or other causes but are sharp and full of detail, will produce excellent enlargements on bromide paper, although they may be of less value for contact printing.

In making enlargements by day-light a dark room is a necessity, and all light which enters it should preferably be from the north, or north-east. Should such a room have a door or window facing this direction (if not, an opening will have to be made) board it up, and make it light-tight, leaving a space sufficiently large to fit the back of the camera to be used.

As a support for the camera, take a piece of plank three feet long and eighteen inches wide, fix one end of it by a couple of inches to the lower part of the opening (which should be 3 or 3½ feet from the floor) and the other by struts let into the wall—(see Fig. A.) To prevent the camera having any movement, screw two pieces of wood along this support on each side of the camera.

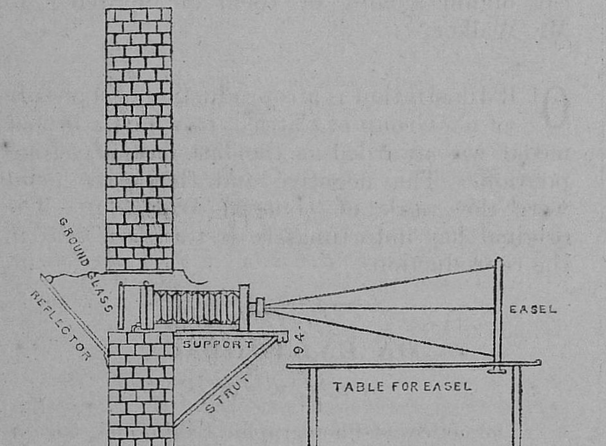
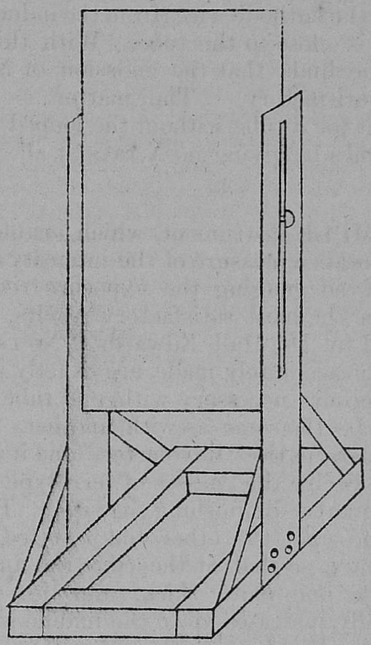


FIG. A.

The easel to receive the sensitized paper should be fixed to a table, six feet long by two wide, having a slot along its centre, in which the clamping screw fixed to the bottom of the easel is made to travel, backwards and forwards, and when the required adjustment is obtained, should be clamped tight to keep it in position, and without movement. This table should be about 9 inches lower than the support for the camera; this is necessary, otherwise the centre of the negative, the axis of the lens and the middle of the easel will not be in a line (see Fig. A.) A more convenient form of easel is one recommended by Mr. Hodges; it is a frame, to which two uprights with slots cut in them are fixed and kept firm by side struts; the easel is hung between these by two screws, which work in the slots and allow it to be raised or lowered (*vide* Fig. B.)



Instead of using the double dark slide of the camera as a carrier for the negative, which would necessitate the drawing up of both the shutters and removing the screen between them, as well as fastening down the inner carrier and negative, it would be best to make a frame similar to that which contains the focussing glass, but instead of the ground glass, fit a set of carriers to it for the different sized negatives to be enlarged.

If the focussing screw of the camera be at the back and cannot be got at without moving the camera, make a small opening by the side of the one for the camera; pass your hand through this and adjust the focus, and when not required for use, a curtain can be arranged to keep this opening light-tight.

As the negative to be enlarged should be brightly and equally lighted, it is necessary to fix a reflector made either of wood or metal painted white, or white cardboard on a frame. It should be much larger than the opening for the camera, and should be fixed outside and under the window at an angle of 45 or 50 degrees so that it can be controlled from the inside by a string (See Fig. A).

If there should be a tree or building in front of the negative, the shadow of which is likely to fall on it, interpose a piece of ground glass between the outer

light and the negative. Your room being ready, and having ascertained that no light enters it, except through the back of the camera, fix the easel on its table or stand. Place the negative, to be enlarged, in the carrier of the frame recommended for it, upside down, with the film towards the room; then, having decided on the size of the enlargement, proceed in accordance with the following formula, to arrange the distance of the easel and the negative from the lens, viz., multiply focus of lens by one more than the number of times of enlargement required. This will give the distance from lens to enlargement or easel: then divide the product by the number of times the negative is to be enlarged: this will give the distance from lens to negative. For instance, supposing you are working with a lens of 12 inches focus, and wish to enlarge your negative four times, then $12 \times (4+1) = 60$: or, 60 inches is the distance of lens from enlargement and $60 \div 4 = 15$, that is 15 inches is the distance from the lens to the negative. This formula worked out and arranged in a tabular form is given at the end of this article. Having arranged the lens and easel accordingly, focus the image as sharply and accurately as possible on a sheet of white paper, pinned to the easel and well illuminated by the reflector. This being done, and all light at the junction of the camera back and opening in the window being carefully shut out, cap your lens, insert the required stop, substitute a sheet of Bromide paper for the white paper, uncap the lens and expose.

As a great deal of the appearance of an enlargment depends on its focus, and as it is not always easy to get this sharp, the following method is recommended. Take an ordinary unused dry plate, fix, wash and dry as usual, then with a drawing pen, charged with Indian ink, draw lines across it, $\frac{1}{4}$ inch apart, as fine and black as possible; do this both ways, so that $\frac{1}{4}$ inch squares are formed. To focus, proceed as follows. Having got the negative and easel in position and the picture roughly focussed, remove the negative from the carrier, and insert the plate with the lines when it will be found that these black lines can be focussed with great ease on the sheet of white paper. Having focussed this, remove the glass with lines and insert the negative, then change the white paper for the Bromide paper and expose.

Although it is difficult to lay down rules for correct exposure when working by day-light, on account of light varying in its actinic value, a very satisfactory method is to expose and to develope small strips of Bromide paper on that part of a picture which has the greatest contrasts. A few trials in this way with a negative will soon give the correct exposure, and when this is obtained a note should be made of it and the time at which it was done for future guidance.

At times it may be necessary to give extra exposure to certain portions of a picture; when this occurs, give the picture the exposure required for it as a whole, cap the lens, then take a piece of cardboard the size of the entire picture and cut out a hole over the portion requiring extra exposure, a little smaller than that part, and hold the cardboard in such a position as will allow the light to fall on this part only and through this opening covering up what is sufficiently exposed with the rest of the card; then take off the cap and give the extra exposure, keeping the card moving the whole time to prevent the picture having a patchy look.

Should your picture require clouds printed in, this can be done from a cloud negative. But before taking off the negative from which the picture is made and inserting the one of clouds, take a pencil and mark with it across the picture, a line showing where the view and sky meet. Trees and portions of buildings, which show on the sky part, need not be noticed, as the clouds on them will scarcely show. Now take off the negative (keeping the lens covered) and insert the cloud negative upside down with the film towards the room. Take a piece of card, cut out a line to correspond with the one already drawn on the picture, and with it shade the view already exposed, uncap the lens and expose for clouds, keeping the card moving, so that the part already exposed does not get a second exposure. The exposure for clouds should be much less than that for the view; or an over-printed sky will, instead of adding to the beauty of the view, give it a look of heavy monsoonish weather.

If the sky part is weak and inclined to print through, it should be masked off while the view is being exposed, exactly as recommended above for the masking of the view when printing in clouds.

Should it be desirable to vignette a picture, it is easily done by cutting out the shape the vignette is to take on a card and holding it between the lens and picture and moving it backwards and forwards during exposure.

For the development, washing, &c., of Bromide enlargements large trays are necessary, but as these are expensive to purchase, they can easily be made with the help of an ordinary carpenter with pieces of wood 3 inches wide and $\frac{3}{4}$ inch thick. Get him to join together a frame, 3 or 4 inches larger each way than the largest piece of paper you are likely to use; then give the frame two good coats of paint with Aspinal's Bath Enamel, and when dry nail on to it white American oil-cloth. This will make a very cheap and efficient tray. Have several made mark each for what it is to be used, and under no consideration use one intended for the developing tray for fixing, or toning, or washing; but for each process have separate trays. After use, wash them with monkey brand soap, and put them aside.

As the most sensitive Bromide paper is less sensitive than the slowest Bromide plate, a fair amount of yellow light can be used in the dark room when working with it. An ordinary D. P. W. lantern, with a piece of orange or yellow fabric round it, will give ample light and be sufficient for all purposes.

(To be continued.)

[library stamp]

OUR HOME LETTER.

12th May 1896.

Since I last wrote, the all-important subject of the newly discovered rays of light has not received any further important innovation, but scientists are gradually coming round to the idea that, after all, these are not electrical rays, but simply rays of ordinary light proceeding in straight lines but vibrating at an enormous velocity. No doubt these views will be varied and modified many times before being decided upon with any degree of certainty. At present the rays present as much difficulty in reflecting or focussing as an attempt to harness the wind, or stay the sun in its course. The literature of the subject grows apace, but most of the books issued are rather of a *dilettante* nature, and tell one very little more than can be learned by reading the daily newspapers, and that information, as one knows, is of a rather sensational character. A book which does not belong to this class, and which can be highly recommended, is by a French author, Guillaume, entitled "Les Rayons X," and published by Gauthier Villars et Fils, Paris. This work deals with the subject scientifically, and is well worth the attention of experimenters. Surgical applications of the X rays are becoming more and more frequent, and the new discovery may be said to have already proved a genuine benefit to surgery.

Talking of new books, several important publications have just been issued, or are about to appear. One of these is Mr. Hector Maclean's book on "Photography for Artists," which describes the many uses of photography in various walks of the pictorial and allied arts. The author gives reasons why artists should use the camera; treats of the photographic misrepresentation of tones, and many other interesting matters. Another book, which is to appear shortly, is Mr. H. P. Robinson's latest work, "The Elements of a Pictorial Photograph", in which is embodied his latest and most mature considerations on this subject. This veteran photographer, at the ripe age of 66, is still a thorough enthusiast in his work. He spends most of his time in his study writing on the art of photography, now and again devoting his attention to picture making, an example which is very inspiring to younger photographers.

The attention of many amateur photographers is temporarily withdrawn to cycling, which has reached enormous popularity this season, especially among the fair sex. In the park, in the street, in the country lane, in fact anywhere where a machine can be driven, there you will find the cyclist, sometimes with a camera, but usually without, and sacrificing everything to a good round pace. There is great pleasure undoubtedly in flying along and feeling the wind whistling past you. If cycling is becoming popular among ladies, photography is also gaining ground in that direction, and this is exceedingly desirable, especially with young girls, for there is too great a tendency to seek for a hobby in fancy needlework, or some similar occupation unfortunately of a too sedentary nature. What our girls need is exercise and fresh air to disperse the anaemic tendency prevalent among the majority, and if, as it is often stated, woman has a higher conception of art, and a greater wish to surround herself with beautiful objects, in what pursuit can she shine to greater advantage than in photography? Butler says, "The whole world without art and dress, would be one great wilderness", and granting the truth of his words, we venture to anticipate that woman in the future may find scope for her abilities more in the direction of art, and less in the direction of excessive dress which is not art when carried to an extreme.

In conclusion, I should like to mention the new flat stripping films just brought out by Messrs. Wellington and Ward. They are fine things for those who use the hand camera, and doubtless will meet with hearty appreciation in the colonies.* The film is mounted on a thin card, and after exposure and development in the usual way, stripped therefrom and placed on a glass plate until dry. When dry the film can be peeled off and remains quite flat like a very thin sheet of gelatine. A thousand negatives in this form would occupy but a small space. The films are also supplied in spools for roller slides.

18th June 1896.

The sunny and leafy month of June generally leads to an epidemic of descriptive essays on different haunts of photographic interest, in which the budding enthusiasm of the amateur photographer-journalist displays a style not always very desirable. The man takes his short holiday of a week or a fortnight, having chosen some place by guess-work on the map, or possibly on the advice of his friends, and when he arrives there deludes himself with the idea that he has practically discovered it, that hitherto it was almost unknown, for if such a "charming spot," such a "tit-bit of nature's loveliness," came within the ken of the British public, the place would most certainly be over-run with tourists. These are his reflections.

Then he goes on to talk about its charms in detail, calls it a "veritable photographers' paradise," and says the "difficulty is not what to take, but what not to take." No place is like it in fact. He is like Mrs. O'Dowd in *Vanity Fair* who never went anywhere or heard any place spoken of but she compared it to her native heath and said, "Shure it is not aqual to GlenMalony."

Now it is quite nice and very desirable for everyone to cultivate some little literary ability, to be able to write a description worthy of publication of any district visited, but let us hope that votaries of the camera will moderate their ideas and adjectives, and not make every spot in this wide world into a Garden of Eden. It is the same spirit which prompts admirers of our English watering places to compare them to

* [The film that will stand the climate here has still to be produced, and we sincerely hope that Messrs. Wellington and Ward's new film will prove satisfactory in this respect. We should much like to make a trial of them.—*Eds.*].

others. Thus, for instance, we have Blackpool which is called the "Brighton of the North," Southport, a northern Madeira, another health resort the "Engadine of England," I forget which it is at the moment. The latest development in this direction is a small watering place on the West Yorkshire coast, pretty enough in its way, but ridiculous in the extreme when dubbed "The English Bay of Naples."

Now all these photograhic paradises are very well in their way, but it is surprising how few amateur photographers bring back anything like satisfactory pictures after they have visited them. Nature seems to have been too much for them, to have crammed such choice effects in so little space, for their photographs are usually barbarous outrages on art, and the man would have done better if he had been put down in a small field with a simple gate and a tree or two, where his powers of selection would not have been overstrained, and where the simple choice of subject would not have confused the mind. Nothing is more difficult even for a photographer of experience than to make real pictures in these districts where there is such a concentration of beauty: he is like the youth from the country in the British Museum, everything is extraordinary to him, he does not know which object to look at first, and leaves the place without a tangible idea about anything at which he has been looking.

In spite of all the plate-spoiling which goes on at this time of the year, a great amount of good work, topographical and artistic, is accomplished, and I cannot help wondering what becomes of it all, for a mere tithe seems to see daylight. Some method is wanted of putting on record all photographs of any intrinsic value which are taken. A print ought to be deposited with the authorities at the District Museum, or some record should be made in the photographic journals, so that in future years one might turn over pages, and find that Mr. So-and-So took a view of this house, or that abbey, now fallen into ruins, and so a print might be obtained by anyone who desired it, either for historic, personal or other purposes. The difficulty in this as in many other matters is to get photographers to organize, to make them systematic, otherwise than by compulsion. A country like France would never hesitate to pass a law compelling everyone to send a print to the Government authorities of the district, but this will never be *un fait accompli* in England.

The knowledge of photography and art is spreading tremendously, even in little out-of-the-way villages it is rare to find a camera a novelty. The farmer will discuss with you the advantages of photography over sketching, will even point out the inaccuracy of artists. Only a few days ago in a little hamlet away from civilization I was told by the proud owner of a litter of pigs that an artist recently showed him a picture of these animals feeding at a trough. "He made a great mistake," said the farmer, "in putting them all in a row with only their heads in the trough. It is seldom you see a pig who does not put his two forefeet in also." The artist cannot be too careful about these details now-a-days.

Next month we have the Convention at Leeds, and then in September the Exhibitions for which individual preparations are going on apace at present.

Photographers are making a determined effort to obtain reduced fares from the Railway Companies on their excursions. One small line, the North Staffordshire Railway Company, has given way, but the larger lines still hold out for reasons which it is difficult to seek. Why anglers and cyclists should have facilities, and not photographers, I cannot tell.

General interest in Röntgen's discovery has died down to some extent, but the genuine experimenters still pursue their researches. Many of the best hospitals have introduced the necessary apparatus for radiography, and cases of diseased bones and foreign objects in either hands or feet are dealt with most expeditiously. I saw a photograph only yesterday of a boy's foot and ankle with a bullet just below the calf where it had lodged for a year, its exact situation not having been known. Thanks to the X ray photograph that bullet will be removed without a very painful operation.

MATTHEW SURFACE.

PROCEEDINGS OF THE SOCIETY.

Monthly Meeting, held at the Masonic Hall, Mount Road.

Friday, July 3rd, 1896.

Mr. F. Dunsterville, President, *in the chair.*

The minutes of the previous meeting having been circulated to members, in the last issue of the Journal, were taken as read and were confirmed.

The Honorary Secretary read a letter from Mr. T. P. S. Nagaratnam suggesting that the exchange journals might be circulated, and it was resolved to obtain a list of members desiring this and of the journals which they would wish to see, and then to consider what steps should be taken to circulate the journals. A letter was also read from Mr. Sivasawmi Naidu offering to place his dark room at the disposal of members when they visit Trivandrum. His offer was accepted with many thanks.

PROPOSAL OF NEW MEMBERS.

Mr. A. S. Napier proposed and Mr. J. L. Walker seconded—

Mr. W. E. Lonsdale,

Mr. E. Thurston proposed and Mr. J. L. Walker seconded—

Mr. C. M. Mullaly,

and they were duly elected to be members of the Society.

Pictures for the Day.

Pictures of a "Water Scene" were exhibited by Mr. Sivasawmi Naidu, who sent five pictures of scenes in Travancore, by His Highness the Elayah Rajah of Travancore, by Surgeon-Major VanGeyzel, and by Mr. Dunsterville who showed five hand-camera pictures very effectively printed in platinum. Mrs. McNair's pictures arrived too late for the meeting.

Next Meeting.

The Picture Subject will be "A Copy," and the demonstration on cold bath platinotype printing, which was postponed, will be given.

CORRESPONDENCE.

The Editors of the Journal.

The Combined Bath.

Sirs,—I send a book of Water Scenes to show you that the combined toning and fixing bath can retain its colour. These were printed and toned cold weather before last and have been to England and back since. The photos. were taken, various trips up and down the Irrawady, on the steamer "Mu," with Adams' "Ideal" camera. The damp got at some of the plates and the sandy waters of the river spotted others when they were washed, so there are many defects. I only send them as specimens of the combined bath. The Ilford P.O.P. paper I found toned more successfully with it than Solio, but it is quite useless to try and use it with the water much above 65 ; at once the prints turn yellow. I think the after washing is the principal necessity for making the colour last.

I had two perforated zinc trays made, which I hung about an inch below the water of my bath and spread out the prints separately and let them soak for an hour. As I took out each print I poured water over it and then put it to dry. In this way the film was not injured, frequent changes of water being unnecessary.

Yours truly,

Madras. L. M. N.

EXTRACTS.

The Toning of Bromide Prints.

BY J. PIKE.

A minor department of practice, which may be safely left for attention when days are dull and clients few, is the resuscitation and rejuvenation of faulty bromide proofs.

In exposing and developing a dozen or so of bromides, it is very rarely indeed that a percentage of more than eight out of twelve turn out really good and fit without further treatment. If, however, we thoroughly fix, wash, and dry the remainder—treat them, in fact, as if they were just as perfect as the others—we shall often find it worth our while at some leisure time to devote a few minutes to them, for it often happens that out of this lot of faulty wasters we can get one or more prints which really may surpass the first and selected prints in tone and brilliance In other words, the ugly duckling may develop into a swan of wonderful plumage.

It is never too late to mend a poorish bromide provided it has been properly *fixed* and *washed.*

I lately found, in a most unexpected place, a roll of bromide prints 15 x 12, which, I should think, were at least seven years old —wasters presumably, and yet had evidently been stored away carefully, in the hope of a time coming when something could be done with them. They were a find in their way, being the sole remaining prints of a medal negative which had some time ago gone over to the majority.

The prints were badly stained (iridescent stains), inclined to be mouldy, had some symptoms of light fog, but were fully developed—had been developed with ferrous oxalate—and were of a greenish tinge far from pleasing.

A glance through the Journal in search of information bearing upon the subject was, of course, useful, inasmuch as a variety of formulæ was very quickly discovered.

It is clear that nothing can be done of any value if the fixing of the print has been imperfect, or if the washing has not resulted in a complete elimination of salts. The first thing to be done was, in the absence of any confidence in what had gone before, to once more *fix* these prints and wash them. This was done, and they were ready, after drying, for further treatment.

To tone or intensify—for that is usually what it amounts to —is never to be done in the absence of a really effective clearing tbath. The surface of a bromide print—or any other film for tha matter—is never in a good condition for this operation, unless it has a mild, but effective, sort of "shampoo process," which leaves it in the best possible condition to receive the action of the toning salts.

From the appearance of the stains and fog, Howard Farmer's reducer was instantly judged to be the best "clearing" agent for this purpose. For my own part, I very rarely intensify without first submitting the film to the action of this excellent bath, and in the present case the prints were, as may be expected, greatly improved. The iridescent stains cleared off, the light fog dispersed; but in one case, that of a print not so fully developed out as the others, it was cleared at the expense of the high lights, which then had rather a chalky appearance. A second washing followed, using gentle friction with wool at intervals, to completely clean the surface.

Three toning baths were used:—Firstly, the alum and hypo bath of the Eastman Company. Their formula is as follows: Sodium hyposulphite, ten ounces; dissolve in three and a half pints of boiling water, then add gradually one ounce of powdered alum. This bath was made and kept some days before use. It was then warmed to 100°, and two prints immersed therein. They took quite thirty-five minutes to tone, and were distinctly the better for the treatment. There was rather more reduction of density with this bath than I expected; but, as the prints were quite over-dense to start with, they were all right in the end. The prints were placed after toning in a simple solution of alum (three-quarters of an ounce to the pint of water), then washed and dried.

The second lot were toned with uranium, *e.g.*:—

Mix freshly—

{ Red prussiate of potassium	...	4 grains.
{ Water	...	4 ounces.
{ Glacial acetic acid ...	...	150 minims.
{ Water	...	4 ounces.
{ Uranium nitrate ...	...	4 grains.

The prints were not *immersed* in the above, but having been wetted thoroughly and attached, face up, to a piece of plate glass, the solution was applied by means of cotton-wool, the whole of the face being well and carefully attended to. Toning proceeded so slowly with this bath that I added a few drops of ordinary "mercurial intensifier" (the usual five per cent. solution), and got, in a few minutes, a very nice *dark oak* tone, which admirably suited the subject. By *surface* toning, the risk of staining, degradation of the whites, &c., is reduced to a minimum, and washing, though thorough, need not be prolonged.

The best results were, I think, got by means of the method suggested, I believe, by Mr. Chapman Jones, viz., bleaching with mercury and redeveloping. For this purpose, a fresh bath of mercury bichloride was made, one part in forty of water. Bleaching in this diluted bath proceeds slowly, steadily and *evenly*. *Thorough* washing follows. This is once more *essential*, otherwise development will be local and patchy. Redevelopment is effected with eikonogen, amidol, hydroquinone, or ferrous oxalate, but the solution must be moderately weak, the chloride image being very easily reduced. On the whole, the results were b[illegible]tter with this method, but merely on

accidental grounds. The few small, mouldy patches showed up less with this operation than with either of the others, and these, after mounting, were more easily obliterated with the pencil. The operations of redevelopment, &c., may be carried out in daylight. The prints are to be washed and dried.

It is quite clear to me, as the result of these few trials, that, with a little more care, a much higher percentage of successes in bromide printing would result. Let the prints be made the best of at the time; then thoroughly fix, wash, and dry the lot; but do not reject, without a trial and due consideration, those which may be below the mark, for something may be made of them.—*The British Journal of Photography.*

To Save an Over-exposed Negative.

It is just at this season of the year that all of us are most liable to incorrectly expose our plates, either over-exposing because of the enormously increased photogenic power of the light as compared with the earlier months of the year, or else under-exposing because, being forewarned of the power of the June sunshine, we are over-cautious not to over-expose, and consequently err in the other direction.

Of the two contingencies the former is the most likely to trouble our readers, and we can well imagine this or that one returning from a sojourn by the sea or out in the bright open country with treasured exposures to develop, finding many of them hopelessly, as he supposes, over-exposed, and the scenes of which a photograph is so desired now too far away for the exposure to be repeated. In a communication made by Herr H. Schmidt, of Berlin, and which is reprinted in the *American Journal of Photography*, a method by which such plates may be saved and converted into negatives of proper printing density is given, which will be welcomed by many.

The rescue of the over-exposed plate, and its restoration to a healthy and vigorous condition, is to take place *during development* and before fixing; hence we recommend that this column be cut out, pasted on to a piece of cardboard, and hung up in the dark-room ready to be referred to in the hour of need.

All are probably familiar with the performance of the greatly over-exposed plate in the developer—the image flashes up quickly, is flat and devoid of contrast, and then gradually or rapidly disappears in a grey fog; and it is at this point that Herr Schmidt's method comes in.

The plate is to be taken immediately from the developer and well washed, and is then placed in a bath consisting of nitrate of silver 5 gr., distilled water 100 c.cm., where it is allowed to remain for several minutes.

The purpose of this is that the gelatine film shall absorb a certain amount of the silver nitrate.

The plate is now lifted and held in a horizontal position, and in that position re-developed by pouring the developer on a corner of the plate and allowing it to spread evenly over the rest of the plate in precisely the same way as adopted for coating a wet plate, this method being adopted in order to prevent the film from parting with any of the silver nitrate recently absorbed; hence only sufficient developer should be poured on to spread and cover the surface but not to flow over the sides.

The image will now be seen to gradually gain strength, and as soon as sufficient vigour is deemed to be secured, action is stopped by washing the plate and fixing as usual.

Herr Schmidt explains the condition of the plate, and the physical and chemical changes which have taken place, as follows: During exposure and subsequent development the sensitive film has undergone, first, a change consisting of a chemical dispersion, and, secondly, has also developed the peculiar property of a physical development, in so far that the exposed parts show an affinity for the metallic silver in a reducing solution of argentic nitrate, whereby the film darkens in proportion to the relative action of the light, or, in other words, the high lights are strengthened while the shadows are not affected.

The chemical changes of the haloid salts bear no relation to the physical ones. Thus it appears that of argentic chloride, bromide, and iodide, the former surpasses all the others.

In other words, the greatest changes of argentic chloride have not been reached when the chemical reduction is complete. Consequently when the chemical development has resulted in a flat negative and is then subjected to a proper physical development, we obtain a secondary image showing all the characteristics of an under-exposure.

Both these images being now upon the same plate, one upon the other in exact register, we produce a combination which gives a normal positive print.

Such is the system of "physical development" which Herr Schmidt recommends, but as alternative to it we are inclined to advise what may be a less scientific but more familiar method of saving our over-exposed negatives.

Probably the mistake which most make is to stop development as soon as the plate is quite suffused with grey and rapidly blackening fog; the image comes up quickly, pale and contrastless, and then, often quite suddenly, a darkening over the whole image takes place, and every trace of image is submerged, and at this point, fearful of going further, the plate is too often hurriedly taken from the developer, washed, and transferred to the fixing bath with feelings of disappointment, and as much philosophical self-consolation as we can summon up.

If, however, instead of transferring the plate to the hyposulphite fixing we lay it aside in a clean dish whilst we mix up a fresh developing solution containing a great excess of pyro (or other reagent), or an abnormally large proportion of restrainer (bromide of potassium), and a very little of the alkaline ingredient, and put the plate in that, covering the dish over, and letting it remain with an occasional rocking whilst we proceed with the development of the next plate, that over-exposed negative may yet give us satisfaction and a good print.

Let this highly restrained and slow development proceed until the plate is perfectly black, all but a solid black, when viewed by the dark-room lamp, and then wash and fix as usual.

If such an opaque condition is not easily arrived at, a few more drops of alkali may require to be added, and after fixing we shall find we have a negative which would probably take a week to print.

The plate must now be submitted to the usual reducing solution of hyposulphite of soda and ferricyanide of potassium, the action of which, as may be imagined, is to reduce and remove most of the "fog," and some of the density of image of which we have plenty to spare.

The ferricyanide reducer suggested by Mr. Howard Farmer consists of a few drops of a ten per cent. solution of ferricyanide of potassinm added to the ordinary hyposulphite of soda solution as used for fixing.

When used in this proportion the action is slow and gradual, and the gradations and half-tones are not destroyed by increasing the proportion of ferricyanide. However, the action is not only more rapid, but the shadows appear to lose density more rapidly in proportion to their depth, and greater contrasts are secured. This is a point to be borne in mind in negatives such as we are describing, in which lack of contrast, owing to over-exposure, is the chief evil.

All the foregoing advice, however, will come too late for those finished negatives which we have by us already too weak for printing. Having tried them with gelatino-chloride papers, or better still the new "Rembrandt" paper noticed in our columns this week, and still failing to get satisfactory prints, we must proceed to first reduce with the normal reducer of Mr. Howard Farmer just given, so as to remove the "fog" as far as possible, and then repair any undesirable loss in the image itself by intensification.

For this purpose the ordinary mercury formula will serve:

Perchloride of mercury	2 parts
Hydrochloric acid	1 part
Water	100 parts

followed, after *thorough* washing, with an immersion in an ordinary hpdroquinone developer, or in liq. ammonia, one part to water ten parts.

Perhaps a cleaner and in some respects a safer method of intensification is one given by Herr Schmidt in the same article as we first quoted from.

His instructions are as follows:—The carefully-washed plate is flowed with a sufficient quantity of the following solution:—

1.—Pyrogalic	10 gr.
Alcohol, 96 per cent....	100 c.cm.
2.—Argentic nitrate	4 gr.
Citric acid	6 "
Distilled water	200 c.cm.

For use, take of No. 1 4 c.cm. and distilled water 100 c.cm., and immediately before use add an equal volume of No. 2. The diluted solution will not keep. When the intensification is seen to have progressed sufficiently far, the plate is to be fixed in the usual manner and well washed.—*The Amateur Photographer.*

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Form.

By Edward Dunmore.

How many otherwise good pictures are spoiled, or, at any rate, their appearance considerably impaired, by inattention to their shape, it is difficult to say. The final trimming may make or mar the result. A very presentable picture may frequently be cut from one which, if left of the original size, would be fit for nothing but the residues. So, if Röntgen rays, kinetoscopic projections, and colour photography have not hustled out every other subject, a word or two about trimming and form may be profitably considered.

Enlargements especially suffer from being left of inartistic proportions, there is such a disinclination to cut down for no fault but superfluity of subject, that the offending portions are retained from sheer reluctance to destroy beautiful detail, although that detail may, if left, seriously damage the appearance and art value of the whole subject. After practising photography for many years, I have experienced the feeling myself, and with sundry spasms of regret have sliced off little by little part of a pretty foreground until the picture was depleted of the full amount I had in the first instance thought would be necessary to remove. No matter how crisp and full of light the portion may be, providing it interferes with the proper balance of the subject, the shears must be ruthlessly applied, shutting our eyes to everything else but artistic form, which must, if possible, be secured at almost any cost, if we mean to have a picture and not merely a photograph. Of course, providing our work is a mere topographical representation, there are other considerations perhaps more important than the purely artistic, at the same time we must go as near as possible to the correct form, as a judiciously trimmed print will make as much better of an awkward subject as a badly trimmed one will make worse of it. Photographers more frequently err in respect of an unsuitable proportion of foreground than in any other manner, it may be too little or it may be too much, frequently the latter, especially when the idea is to get a picture the full size of the plate. I believe it is almost impossible to decide precisely and definitely as to the exact amount of subject that will make the best picture, by examining the image on the focussing screen. It is not until we have the print before us that we can satisfactorily do this, and even then it takes more consideration than might be supposed would be necessary, masking off a slice here and a slice there until the final shape is determined upon.

The fact of having become accustomod to work with plates of definite sizes, and making our photographs to fill them up as much as possible, irrespective of other considerations, has been a prime factor in fostering the disinclination to cut the prints down. Mounts, too, being made for quarter-plate, half-plate, whole-plate, &c., sizes, has also influenced the makers of negatives and prints to make them to correspond with the mounts. I am not aware that any mounts are in the market that are not made in accordance with the usual sizes of the plates; that is, if we purchase them ready-made, with paste-down or lithographed tints, or ornamental lines and borders. A plain board will, of course, suit any shape, but a print, quite different in proportion to the usual tints, looks very ugly when attached to them, unless the prints are very much smaller than the tints they are laid on. Taking one size with another, I am inclined to think the general run of photograph is too square for landscape pictures, a somewhat longer shape would be preferable. However, this is a mere matter of taste, and is also in a measure regulated by the subject itself, or ought to be to a much greater extent than it is. When suitable, one of the advantages of a longer form is, that it increases the effect of extent. The shape termed panoramic gives the widest obtainable by trimming, and very often a photograph of this kind may be cut from a squared form with advantage, making a good picture, when the original was unsatisfactory. The proportions of a panoramic picture may be anything more than having the length twice that of the width. It is especially suitable for sketches of flat country, or river scenes when there are no tall objects in the near or middle distance; if there are, we are almost bound to adopt a square form. It is very seldom that a picture looks its best when the width equals its height; perfectly square or circular forms are only occasionally useful in landscapes, and even then the square is a doubtful advantage; probably the same subject in an oblong or oval would have a more pleasant appearance.

If we examine many artistic and delightful etchings and engravings, we find a portion bounded by the segment of a definite circle, or eccentric shape, and the rest vignetted; then, the outside form is unimportant, and is adapted to the exigencies of the case. In the book, or in whatever it may be mounted, the subject being a rule to itself, and independent of outside trimming. Tall, narrow forms are only applicable to tall narrow subjects, floral or *decorative* photographs, but for ordinary landscapes or portraits they are quite out of place. If three or four of this upright narrow shape are mounted side by side, the conditions are altered, and they assume the more ordinary character, the outside margins or lines of the *whole* impress one with the general effect, and not each individual picture, which singly would appear unsatisfactory, although, together, the effect is pleasant enough. As a rule, the horizon line regulates the amount of sky and foreground, the position of which is dependent on the height of the eye of the spectator, but in a photograph this rule is frequently disregarded. For instance, a photograph taken from a great elevation has frequently a much larger allowance of sky than it ought correctly to have; and one taken from a very low point of view may have much more. There is no absolute rule as to the proportion of sky or foreground above and below this line, but one-third of the width of the picture above the horizon, and two-thirds below it, is frequently adopted as a satisfactory adjustment. If the sky and landscape occupy exactly the same amount of space, there is a formality imparted to the picture better avoided.

When the upper part of the subject is well filled with clouds, a new interest is added, and then the horizon line may be lower, with advantage, than were the clouds non-existent. When the subject consists principally of near objects, without any distance, an imaginary line is drawn of the average height of a standing figure, and the print trimmed to suit it.

It is a very common practice to take the interior of large buildings from an unusually high standpoint, which gives an unreal effect, unless there is something that unmistakably indicates the position from which the view was taken. If an unobstructed view can be had from the floor, the general effect is, in my opinion, much better; even if we have to tip the camera, swing the back, and raise the lens, the point of sight still remains the same. There are occasions when something in the foreground has to be left out; that can only be managed by adopting a high standpoint, or it may be the position for which a photograph can be made is so restricted that the elevated position is imperative. This is, however, rather outside the subject of shape, which we are more especially considering, although the amount of floor space and roof has a very important effect on the results. Too much trimmed off the foreground makes a building seem to be sinking into the ground, and too little gives an up-hill appearance, to what should be the level. This up-hill look is frequently seen when churches and similar buildings are taken from a lofty gallery; it is not that the perspective is incorrect, but that the point of sight is unusual, and we get too little foreground to make a pleasant picture. This emphasises the necessity of having the horizon line of a suitable height, so that the perspective may not appear distorted, and applies to all architectural photographs, especially those that have to be taken from a near point of view, for no trimming will get rid of the effect of an unsuitable standpoint.

Whilst on the subject of architecture too great importance cannot be laid on the necessity of having perpendicular uprights obtained only by properly adjusting the *dark slide* so that it is truly vertical and level. In a print in which lines that ought to be upright incline one way or the other, the trimming must in some degree be managed to counteract the inclination; supposing they incline inwards at the top, the trimming must be slightly inclined too, which will make the top edge of the print narrower than the bottom; in mounting the top can be stretched a little, so that the want of uprightness of the lines is remedied, and the mounted print will be more correctly rectilinear. Sometimes it happens that the uprights are so much out of truth that it is impossible to stretch the paper sufficiently; in this case the sides of the prints are better left slightly sloped, which will apparently reduce the inclination of the image, and so be better than accurate trimming that would have a tendency to emphasise the fault. Eccentric shapes are to be deprecated, even dome-shaped tops or very much rounded-off top corners interfere with the appearance of the subject; but, as for cushion shape, it should be abolished altogether, it was originally introduced to cut off defective corners, as also was the dome; but since we have cleaner manipulation there is no necessity for perpetuating a decidedly ugly shape. The only place in which such forms are not very objectionable is in the portrait miniature, which will permit the use of such shapes that for other kinds of photographs are quite out of the question; at the same time the trimming of portrait subjects is governed by the same rules as landscapes with a few additional precautions.

The oval form is a favourite one for vignetted heads and busts, and, when the boundary line is not too close to the subject, very suitable; trimming so that the head occupies the proper position both with reference to the centre and the pose is important. As a general rule, the head should be rather above the centre of the picture and never below it, and never trimmed so as to appear pitching forward or backward, as the case may be. If the body is included in the vignette, although the pose may be a leaning one, the picture should be upright; this especially applies to full-length figures. In portraiture, the trimming usually is secondary to the mounting, at any rate it is the determination of the outside boundaries of the subject, so it comes to the same thing. Squarer forms are generally more applicable to portraiture than landscape work; narrow oblongs, either horizontal or vertical, more rarely. In the first, a reclining figure or extended group, and in the second a single standing figure or small standing group are most appropriate. But for all subjects the shape is controlled by the composition as to length and breadth, the only imperative condition is that it shall be symmetrical.—*The British Journal of Photography.*

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